

*What is claimed is:*

1. A gaming machine, comprising:

5 a gaming controller operable to control one or more games of chance played on the gaming machine;

memory operable to store 3-D data corresponding to a 3-D gaming environment;

a display;

10 gaming logic operable to render a plurality of images of the 3-D gaming environment for presentation on the display, the images depicting manipulation of one or more aspects of the 3-D gaming environment by a user;

a user interface operable to provide user input to facilitate the manipulation of the one or more aspects of the 3-D gaming environment by the user.

15 2. The gaming machine of claim 1 wherein manipulation of the one or more aspects of the 3-D gaming environment comprises any of changing a viewpoint perspective within the 3-D gaming environment, changing a position within the 3-D gaming environment, moving an object, reshaping an object, eliminating an object, creating an object, and causing objects to interact.

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3. The gaming machine of claim 1 wherein the user interface comprises any of a touchscreen, a trackball, one or more buttons, a joystick, a body-tracking device, a positional sensor, one or more inertial sensors, a wand, a mouse, a touchpad, a pressure sensitive device, a discrete device, a voice recognition system, thermal  
25 sensors, optical sensors, or any combination thereof.

4. The gaming machine of claim 1 wherein the one or more games of chance comprise a plurality of games of chance, the gaming logic being further operable to render the plurality of images to depict a plurality of outcomes for the

plurality of games of chance, the plurality of outcomes being configured in an arrangement.

5           5.       The gaming machine of claim 4 wherein the gaming logic is operable to render at least one of the images which presents all of the outcomes simultaneously from at least one perspective.

10           6.       The gaming machine of claim 4 wherein the gaming logic is operable to render at least one of the images which presents less than all of the outcomes simultaneously from at least one perspective.

15           7.       The gaming machine of claim 4 wherein the manipulation of the one or more aspects of the 3-D gaming environment comprises changing a viewpoint perspective within the 3-D gaming environment such that the plurality of outcomes may be viewed from a plurality of different perspectives.

20           8.       The gaming machine of claim 7 wherein gaming logic is operable to constrain the changing of the viewpoint perspective with reference to the arrangement.

25           9.       The gaming machine of claim 8 wherein the gaming logic is operable to constrain the changing of the viewpoint perspective by employing only degrees of freedom which result in each of the images showing at least a portion of the arrangement of the plurality of outcomes.

30           10.      The gaming machine of claim 4 wherein the arrangement comprises any of a 2-D planar array, a 2-D planar array receding to a point within the 3-D gaming environment, a 2-D array on a curved surface, a 3-D array, a pillar configuration on one or more surfaces of a cylinder, a reel configuration on surfaces of a plurality of reels, a polyhedral configuration on surfaces of a polyhedron, a

boundary configuration on surfaces bounding the 3-D gaming environment, and a room configuration in a plurality of sub-spaces within the 3-D gaming environment.

11. The gaming machine of claim 1 wherein the gaming logic is operable  
5 to render the plurality of images such that the manipulation of the one or more aspects of the 3-D gaming environment is constrained in at least one of a plurality of degrees of freedom associated with the 3-D gaming environment.

12. The gaming machine of 11 wherein the manipulation of the one or  
10 more aspects of the 3-D gaming environment comprises changing a viewpoint perspective within the 3-D gaming environment thereby simulating navigation within the 3-D gaming environment.

13. The gaming machine of 12 wherein changing the viewpoint  
15 perspective comprises allowing the viewpoint perspective to change in only one of the degrees of freedom.

14. The gaming machine of claim 12 wherein changing the viewpoint  
20 perspective comprises allowing the viewpoint perspective to change only in fewer than all of the degrees of freedom.

15. The gaming machine of claim 12 wherein the navigation is constrained to a predetermined path within the 3-D gaming environment.

25 16. The gaming machine of claim 11 wherein the degrees of freedom comprises up/down, forward/reverse, left/right, roll, pitch, yaw, and zoom in/zoom out.

17. The gaming machine of claim 11 wherein the degrees of freedom correspond to any of a Cartesian coordinate system, a polar coordinate system, and a spherical coordinate system.

5 18. The gaming machine of claim 1 wherein the gaming logic is further operable to provide sound effects corresponding to the manipulation of the one or more aspects of the 3-D gaming environment.

10 19. The gaming machine of claim 18 wherein the sound effects simulate location and motion.

20. A gaming machine, comprising:

15 a gaming controller operable to control a plurality of games of chance played on the gaming machine, and to generate a plurality of outcomes corresponding to the games of chance;

memory operable to store 3-D data corresponding to a 3-D gaming environment;

a display; and

20 gaming logic operable to render a plurality of images of the 3-D gaming environment for presentation on the display, each of the images depicting fewer than all of the plurality of outcomes, successive ones of the images facilitating navigation among all of the outcomes.

25 21. The gaming machine of claim 20 wherein the plurality of outcomes are configured in an arrangement comprising any of a 2-D planar array, a 2-D planar array receding to a point within the 3-D gaming environment, a 2-D array on a curved surface, a 3-D array, a pillar configuration on one or more surfaces of a cylinder, a reel configuration on surfaces of a plurality of reels, a polyhedral configuration on surfaces of a polyhedron, a boundary configuration on surfaces bounding the 3-D

gaming environment, and a room configuration in a plurality of sub-spaces within the 3-D gaming environment.

22. The gaming machine of claim 20 wherein the gaming logic is operable  
5 to render the images such that the outcomes may be viewed from a plurality of perspectives within the 3-D gaming environment.

23. The gaming machine of claim 22 wherein the outcomes are presented  
in an arrangement within the 3-D gaming environment, the gaming logic being  
10 operable to constrain the plurality of perspectives from which the outcomes may be viewed with reference to the arrangement.

24. The gaming machine of claim 23 wherein the arrangement comprises a  
virtual planar array of the outcomes, and wherein the gaming logic is operable to  
15 constrain the plurality of perspectives to a portion of the 3-D gaming environment above the array.

25. The gaming machine of claim 23 wherein the arrangement comprises  
an array of the outcomes on a substantially cylindrical surface, and wherein the  
20 gaming logic is operable to constrain the plurality of perspectives such that the outcomes may only be viewed normal to the cylindrical surface from a fixed distance.

26. The gaming machine of claim 23 wherein the arrangement comprises  
pay lines on a plurality of virtual slot machine reels, and wherein the gaming logic is  
25 operable to constrain the plurality of perspectives to viewing of the pay lines.

27. The gaming machine of claim 23 wherein the gaming logic is operable  
to constrain the plurality of perspectives by restricting at least one of a plurality of  
degrees of freedom.

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28. The gaming machine of claim 27 wherein the degrees of freedom comprises up/down, forward/reverse, left/right, roll, pitch, yaw, and zoom in/zoom out.

5 29. The gaming machine of claim 27 wherein the degrees of freedom correspond to any of a Cartesian coordinate system, a polar coordinate system, and a spherical coordinate system.

10 30. The gaming machine of claim 20 further comprising a user interface operable to provide user input to facilitate the navigation among the outcomes.

15 31. The gaming machine of claim 30 wherein the user interface comprises any of a touchscreen, a trackball, one or more buttons, a joystick, a body-tracking device, a positional sensor, one or more inertial sensors, a wand, a mouse, a touchpad, a pressure sensitive device, a discrete device, a voice recognition system, thermal sensors, optical sensors, or any combination thereof.

20 32. A method for facilitating manipulation of at least some aspects of a 3-D gaming environment presented on a display of a gaming machine, the gaming machine being operable to facilitate play of one or more games of chance, the method comprising rendering a plurality of images of the 3-D gaming environment for presentation on the display, the images depicting manipulation of the one or more aspects of the 3-D gaming environment by a user using a user interface.

25 33. The method of claim 32 wherein manipulation of the one or more aspects of the 3-D gaming environment comprises any of changing a viewpoint perspective within the 3-D gaming environment, changing a position within the 3-D gaming environment, moving an object, reshaping an object, eliminating an object, creating an object, and causing objects to interact.

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34. The method of claim 32 wherein the user interface comprises any of a touchscreen, a trackball, one or more buttons, a joystick, a body-tracking device, a positional sensor, one or more inertial sensors, a wand, a mouse, a touchpad, a pressure sensitive device, a discrete device, a voice recognition system, thermal  
5 sensors, optical sensors, or any combination thereof.

35. The method of claim 32 wherein the one or more games of chance comprise a plurality of games of chance, and wherein the plurality of images depict a plurality of outcomes for the plurality of games of chance, the plurality of outcomes  
10 being configured in an arrangement.

36. The method of claim 35 wherein at least one of the images presents all of the outcomes simultaneously from at least one perspective.

37. The method of claim 35 wherein at least one of the images presents less than all of the outcomes simultaneously from at least one perspective.  
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38. The method of claim 35 wherein the manipulation of the one or more aspects of the 3-D gaming environment comprises changing a viewpoint perspective within the 3-D gaming environment such that the plurality of outcomes may be  
20 viewed from a plurality of different perspectives.

39. The method of claim 38 wherein the changing of the viewpoint perspective is constrained with reference to the arrangement.  
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40. The method of claim 39 wherein the changing of the viewpoint perspective is constrained by employing only degrees of freedom which result in each of the images showing at least a portion of the arrangement of the plurality of outcomes.  
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41. The method of claim 35 wherein the arrangement comprises any of a 2-D planar array, a 2-D planar array receding to a point within the 3-D gaming environment, a 2-D array on a curved surface, a 3-D array, a pillar configuration on one or more surfaces of a cylinder, a reel configuration on surfaces of a plurality of  
5 reels, a polyhedral configuration on surfaces of a polyhedron, a boundary configuration on surfaces bounding the 3-D gaming environment, and a room configuration in a plurality of sub-spaces within the 3-D gaming environment.

42. The method of claim 32 wherein the manipulation of the one or more  
10 aspects of the 3-D gaming environment is constrained in at least one of a plurality of degrees of freedom associated with the 3-D gaming environment.

43. The method of 42 wherein the manipulation of the one or more aspects  
15 of the 3-D gaming environment comprises changing a viewpoint perspective within the 3-D gaming environment thereby simulating navigation within the 3-D gaming environment.

44. The method of 43 wherein changing the viewpoint perspective  
20 comprises allowing the viewpoint perspective to change in only one of the degrees of freedom.

45. The method of claim 43 wherein changing the viewpoint perspective  
comprises allowing the viewpoint perspective to change only in fewer than all of the  
25 degrees of freedom.

46. The method of claim 43 wherein the navigation is constrained to a  
predetermined path within the 3-D gaming environment.

47. The method of claim 42 wherein the degrees of freedom comprises  
30 up/down, forward/reverse, left/right, roll, pitch, yaw, and zoom in/zoom out.



48. The method of claim 42 wherein the degrees of freedom correspond to any of a Cartesian coordinate system, a polar coordinate system, and a spherical coordinate system.

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49. The method of claim 32 further comprising providing sound effects corresponding to the manipulation of the one or more aspects of the 3-D gaming environment.

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50. The method of claim 49 wherein the sound effects simulate location and motion.

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51. A method for presenting a plurality of outcomes of a plurality of games of chance on a display of a gaming machine, the method comprising rendering a plurality of images of a 3-D gaming environment for presentation on the display, each of the images depicting fewer than all of the plurality of outcomes, successive ones of the images facilitating navigation among all of the outcomes within the 3-D gaming environment.

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52. The method of claim 51 wherein the plurality of outcomes are configured in an arrangement comprising any of a 2-D planar array, a 2-D planar array receding to a point within the 3-D gaming environment, a 2-D array on a curved surface, a 3-D array, a pillar configuration on one or more surfaces of a cylinder, a reel configuration on surfaces of a plurality of reels, a polyhedral configuration on surfaces of a polyhedron, a boundary configuration on surfaces bounding the 3-D gaming environment, and a room configuration in a plurality of sub-spaces within the 3-D gaming environment.

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53. The method of claim 51 wherein the images depict the outcomes from a plurality of perspectives within the 3-D gaming environment.

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54. The method of claim 53 wherein the outcomes are presented in an arrangement within the 3-D gaming environment, and wherein the plurality of perspectives from which the outcomes may be viewed is constrained with reference to the arrangement.

55. The method of claim 54 wherein the arrangement comprises a virtual planar array of the outcomes, and wherein the plurality of perspectives is constrained to a portion of the 3-D gaming environment above the array.

56. The method of claim 54 wherein the arrangement comprises an array of the outcomes on a substantially cylindrical surface, and wherein the plurality of perspectives is constrained such that the outcomes may only be viewed normal to the cylindrical surface from a fixed distance.

57. The method of claim 54 wherein the arrangement comprises pay lines on a plurality of virtual slot machine reels, and wherein the plurality of perspectives is constrained to viewing of the pay lines.

58. The method of claim 54 wherein the plurality of perspectives is constrained by restricting at least one of a plurality of degrees of freedom.

59. The method of claim 58 wherein the degrees of freedom comprises up/down, forward/reverse, left/right, roll, pitch, yaw, and zoom in/zoom out.

60. The method of claim 58 wherein the degrees of freedom correspond to any of a Cartesian coordinate system, a polar coordinate system, and a spherical coordinate system.